

ITEM OPPORTUNITY SYNOPSIS

Scouting Number:	2024-214
Name of the item to be scouted:	Fire Alarm Control Panel
State item to be used in:	Vermont

Describe the Item:

<p>Please describe the item application/the end use of the item.</p>	<p>An addressable fire alarm control panel is the building's central fire alarm unit that can identify and communicate with each individual fire alarm device connected to the system. The devices can be initiating devices such as smoke detectors, heat detectors, duct smoke detectors, manual pull stations, tamper switches and flow switches. The devices can also be notification devices such as speaker/strobes, remote alarm indicators, bells, and beacons.</p>
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Supplier Information:

Type of Supplier Being Sought (select from the list below):	
Manufacturer	x
Contract Manufacturer	
Distributor	
Other (Please Specify)	

Reason for Scouting Submission (select from the list below)	
2nd Supplier	
Price	
Re-Shore	
Past supplier no longer available	
New Product Startup	
BABA	x
Other (Please Specify)	

Summary of Technical Specifications and Performance Requirements:

<p>Describe the manufacturing processes (elaborate to provide as much detail as possible)</p>	<p>The engineer creates a system design considering factors such as functionality, compatibility, and safety. The design is then printed on circuit boards that includes microprocessors, relays, and user interfaces. The printed circuit boards are placed into an enclosed assembly and integrated with individual fire alarm devices via low voltage wiring.</p>
<p>Provide dimensions / size / tolerances / performance specifications of the item</p>	<p>Main fire alarm control panel "C" cabinet size would be 38"H x 24"W x 6"D. Refer to specification section 267100 for fire alarm control panel specifications.</p>
<p>List required materials needed to make the product, including materials of product components, if applicable</p>	<p>Fire Alarm Control panel components includes: digital LCD display, LED light indicators, push buttons, printed circuit boards, battery packs, and low voltage wiring.</p>

Are there applicable certification requirements?	
Yes	x
No	

<p>Please explain:</p>	<p>IEEE ISO 9001 UL Other ? ANSI ? ASTM ? ADA ? AEIC ? CSA ? EEI ? EPA ? FM ? FCC ? FIPS Pub 94 ? ICEA ? IBC ? IEC ? IECC ? OSHA ? NEC ? NESC ? NEMA ? NFPA</p>
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Are there any applicable regulations that apply to the production of this item?	
Yes	
No	x
Please explain:	

Are there any other standards / requirements?	
Yes	x
No	
Please explain:	
See provided specifications 267100 (1.4) REGULATORY REFERENCES for more information.	

NAICS CODES:

NAICS 1	561621 Security Systems Services (except Locksmiths)
NAICS 2	
Additional Comments:	
Additional technical comments:	
Volume and Pricing:	
Estimated Potential Business Volume (i.e. #units per day, month, year):	1 Fire Alarm Control Panel needed for project.
Estimated Target Price/Unit Cost Information:	Fire Alarm Control Panel – \$4,000
Delivery Requirements:	
When is it needed by? (Immediate, 30 days, 6 months, etc.)	Construction is scheduled to start in February of 2025.
Describe packaging requirements (i.e. individually/group packaging, etc.)	Individually wrapped
Where will this item be shipped?	Norwich University, Northfield, VT
Additional Comments:	
Is there other information you would like to include?	Contact information for questions including BABA/Buy American compliance: Jones Architecture Alya Staber alya@jonesarch.com Please copy scouting@nist.gov on all correspondence.

SECTION 264100

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Provide all motor and circuit disconnect switches as required by NEC and as indicated.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary General Conditions and other Division 01 specification sections, apply to this Section and to all Contractors, Subcontractors, or other persons supplying materials and/or labor, entering into the Project site and/or premises, directly, or indirectly.
- B. The Specifications and Drawings are intended to be complementary. A particular section, paragraph or heading in a Division may not describe each and every detail concerning work to be done and materials to be furnished. The Drawings are diagrammatic and may not show all of the work required or all construction details. Dimensions are shown for critical areas only; all dimensions and actual placements are to be verified in the field. It is to be understood that the best trade practices of the Division will prevail. It remains the responsibility of the Contactor or Subcontractor to provide all items, equipment, construction, and services required to the proper execution and completion of the Work.
- C. Reference listings are provided as a convenience to the Contractor or Subcontractor providing the Work of this Section and may not contain all the requirements affecting this Section. It remains the responsibility of the Contractor or Subcontractor to locate and comply with all requirements of the Contract Documents.

1.3 SUBMITTALS

- A. Submit product data in accordance with Section 260100.
- B. Submit data including switch or circuit breaker size, voltage, and NEMA rating.
- C. Submit dimensional data of all motor and circuit switches, enclosed circuit breakers and company switches.
- D. Submit test results in accordance with Section 260800.
- E. Certifications: Provide manufacturer's certification that all applicable products were manufactured in United States and meet the requirements of the Build America, Buy America Act (BABA) (part of Infrastructure Investment and Jobs Act).

1.4 REGULATORY REFERENCES

- A. All specified items or systems shall be designed, manufactured, tested, and installed in compliance with applicable provisions of all governing codes, rules, laws, and ordinances in accordance with Section 260100.
 - 1. If there is a conflict between applicable documents, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the

- documents. The Contractor has the responsibility to determine and adhere to all applicable documents and to the most recent release when developing the proposal for installation.
2. This document does not replace any code, either partially or wholly. The Contractor must be aware of local codes that may impact this project.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with requirements, provide products by the following:
 1. Disconnect Switches:
 - a. Siemens
 - b. General Electric
 - c. Square D
 - d. Cutler-Hammer
 2. Circuit Breakers:
 - a. Siemens
 - b. General Electric
 - c. Square D
 - d. Cutler-Hammer
- B. Substitutions: Items of equal quality, function and performance may be proposed for substitution by following the procedures outlined in Section 260100.

2.2 ENCLOSURES

- A. Enclosures shall be fabricated from 16-gauge minimum galvanized or equivalent rust-resistant steel with rust-inhibiting primer and baked-enamel finish.

2.3 DISCONNECT SWITCHES

- A. Shall be quick-make, quick-break single-throw externally operated manual type disconnect switches in NEMA 1 enclosure for interior dry use and NEMA 3R for exterior. If indicated on the Drawings, the unit shall be fused according to the protected equipment manufacturers' recommendations.
- B. Switches shall be capable of being locked in the open position.
- C. Switches shall be heavy-duty type.
- D. Where required for elevator control, provide an auxiliary dry contact with a minimum rating of 1 ampere at 48 VDC. Contact shall be dry and isolated with a contact configuration of SPST. Contact set shall be sealed.
- E. Where disconnect switches are located on the load side of Variable Frequency Drives (VFDs), switches shall have auxiliary contacts for controls to shut down VFD completely when power is interrupted to the motor. Contact shall be dry and isolated with a contact configuration of SPST. Contact set shall be sealed.

2.4 ENCLOSED CIRCUIT BREAKERS

- A. Enclosed circuit breakers shall be molded case, bolt-on heavy-duty type having quick-make, quick-break manually-operated toggle mechanism. Handle shall be trip-free with three positions that clearly indicate when the breakers are "on," "off," or "tripped." Multiple-pole circuit breakers shall operate on a common trip principle. All circuit breakers shall provide overcurrent and short-circuit protection.
- B. The minimum AIC rating shall be 22,000 amperes, unless otherwise indicated on the Drawings. It shall be the responsibility of the equipment supplier to coordinate all secondary breaker interrupting capacities and to indicate them on applicable submittals.
- C. Circuit breakers shall be housed in a NEMA 1 enclosure for dry locations and NEMA 3R for damp or exterior locations.
- D. Where sprinklers are provided in the elevator shaft, provide shunt trip unit on circuit breaker for elevator power.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Surface-mount switches and circuit breakers so as not to interfere with other equipment.
- B. Mount according to manufacturer's recommendations, NEC, and Section 260700.
- C. Verify exact wall dimensions in field to ensure that standard enclosures specified can be arranged in the space allocated.
- D. Provide fuses for all disconnect switches.

END OF SECTION

Enclosed Safety Switches

Class 3100

Catalog

3100CT1602
R06/19



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Catalog Number Description

Table 1 - General Duty Switches Catalog Number Description

Number Segment	Character	Description	D	3	2	1	N	RB	—
Type of Switch	Fusible	L=Light duty							
		D=General duty							
	Non-Fusible	DU=General duty							
Blades—Switch Poles	1	One-pole							
	2	Two-poles							
	3	Three-poles							
Voltage Rating	1	120 Vac (plug fuse)							
	2	240 Vac							
Ampere Rating	1	30 A							
	2	60 A							
	3	100 A							
	4	200 A							
	5	400 A							
	6	600 A							
	7	800 A							
Neutral	N	Factory-installed neutral (neutrals are field-installed on most general duty safety switches).							
Enclosure	No suffix	NEMA Type 1							
	R	NEMA Type 3R							
	RB	NEMA Type 3R (bolt-on hub provision)							
Factory Modifications ¹	N/A								

1. Factory modifications are not available for Light duty or General duty safety switches.

General Duty Safety Switches

Product Description

Light duty safety switches are ideal for home applications when disconnecting power to workshops, hobby rooms, furnaces and garages. General duty safety switches are designed for residential and commercial applications where durability and economy are prime considerations. Typical loads include lighting, air conditioning and appliances. They are suitable for use as service equipment when equipped with a factory-installed neutral assembly or field-installed service grounding kit, as applicable. Light duty and general duty safety switches are UL® Listed, File E2875, and meet or exceed the NEMA® Standard KS1.

Light Duty



General Duty



Configuration

- One, fusible, switched pole with insulated neutral
- Two, fusible, switched poles with insulated neutral
- Three, fusible, switched poles with insulated neutral
- Two or three, non-fusible, switched poles without insulated neutral

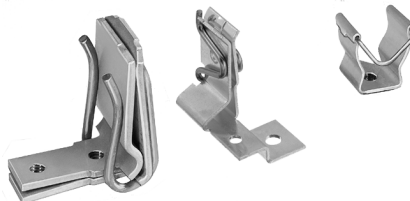
Construction

Visible Blade Construction

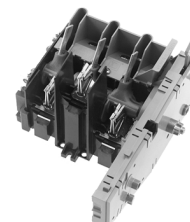


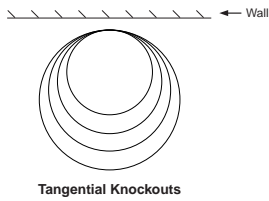
- Indoor NEMA Type 1 or Outdoor NEMA Type 3R enclosures
- Visible blades for positive indication that the switch is “OFF”
- Quick-make, quick-break operating mechanism (general duty only)
- Lugs suitable for aluminum or copper conductors. See page 8 and 9 for additional lug data
- Spring reinforced, plated copper fuse clips

Spring Reinforced Fuse Clips



Operating Mechanism with Line Base Series F





- Series F handle/lock-plate is a field-replaceable modular design
- Series F operating mechanism is an enclosed, field-replaceable, modular design
- Series F NEMA Type 3R covers have side opening construction
- Top endwalls in 30–200 A NEMA Type 3R switches have bolt-on hub provisions
- Multiple padlock provisions in “OFF” position
- Tangential combination knockouts alleviate the need for offset bends

Enclosures

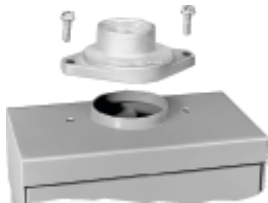
Enclosures are finished in gray, baked enamel that is electrodeposited on cleaned, phosphatized steel.

- NEMA Type 1 general purpose, indoor
- NEMA Type 3R general purpose, outdoor

Accessories

Rainproof Hubs

**RB Hub Provisions
30–200 A**



Bolt-on hubs for rainproof applications. Switches with RB suffix accept 3/4 in. (19 mm) through 2-1/2 in. (63 mm) bolt-on hubs. Switches with R suffix have blank endwalls.

Table 2 - Rainproof Bolt-On Hubs—For Use on NEMA Type 3R Enclosures

Con-duit Size	3/4	1	1-1/4	1 1/2	2	2-2/1	3	3-1/2	4	Clos-ing Cap
Hub Cat. Num-ber	B075	B100	B125	B150	B200	B250	B300	B350	B400	BCAP

NEMA Type 3R rainproof enclosures with a catalog number ending in RB, have a bolt-on closing cap factory-installed. Order bolt-on hubs separately. Refer to the information in Table 2 above. Hubs through size 2-1/2 in. (63 mm), can be directly installed on RB devices. Devices requiring 3 in. (76 mm) or larger hubs, must have holes cut in the field. Gaskets are provided on 3 in. (76 mm) and larger hubs. All hubs are UL Listed for indoor and rainproof applications and suitable for use with conduits containing an ANSI standard taper pipe thread.

Class R Fuse Kits

**Class R Fuse Kits
Series F Switches
Only**



- This kit rejects all but Class R fuses when installed
- For systems up to 100,000 rms symmetrical amperes

Fuse Puller Kits

Fuse Puller Kit Series F Switches Only



The Fuse Puller kits consist of three fuse pullers as required for a three-pole, fusible, 60 or 100 A general duty switch. Kits can be field installed into 60 or 100 A, Series F switches.

Table 3 - Fuse Puller Kits

Switch Ampere Rating	Series Number	Fuse Puller Kit Catalog Number
60	F	FPK03
100	F	FPK0610

Equipment Grounding Kits

Grounding Kits

30 and 60 A PK3GTA1



100 A GTK0610



200 A PKOGTA2



- Aluminum or copper conductors
- Field-installed

Table 4 - Equipment Grounding Kits

Switch Ampere Rating	Catalog Number	Lug Wire Range AWG
30 ²	Std.	(1) 14 – 10 Cu or (1) 12 – 8 Al
30	PK3GTA1	(3) 14–4 Cu or (3) 12–4 Al or (6) 14–12 Cu or (6) 12–10 Al
60 ³	GTK03	(2) 14–4 Cu or (2) 12–4 Al (4) 14–12 Cu or (4) 12–10 Al
100	GTK0610	(2) 14–1/0 Cu or (2) 12–1/0 Al (2) 14–6 Cu or (2) 12–6 Al
200	PKOGTA2	(2) 10–2/0 Cu or (2) 6–2/0 Cu Al
400, 600	PKOGTA2 ₄	(2) 10–2/0 Cu or (2) 6–2/0 Cu Al
800	PKOGTA3	(6) 6–3/0 Al/Cu Max.

2. Light duty safety switches.
 3. 60 A non-fusible switches accept PK3GTA1.
 4. Two are required if the ground conductors are run in parallel.

Electrical Interlock Kits

Electrical interlocks for Series F 100–200 A general duty safety switches and Series F 60 A fusible general duty safety switches are available in kit form for field installation. Each kit contains instructions for proper field mounting. A pivot arm operates from the switch mechanism, breaking the control circuit before the main switch blades break. Switches with electrical interlocks installed are UL Listed.

Table 5 - Electrical Interlock Kits

Switch Ampere Rating	Electrical Interlock Kit Catalog Number ⁵
Fusible Series F 60	<i>EIK031</i> or <i>EIK032</i>
Series F 100–200	<i>EIK-1</i> or <i>EIK-2</i>

Table 6 - Electrical Interlock Contact Ratings

Interlock Type ⁶	AC 50 or 60 Hz				DC		
	Volts	Make	Break	Cont.	Volts	Make / Break	Cont.
1 N. O. / 1 N. C. Contact (Ending in 17)	120	40.00 A	15.00 A	15.00 A	115	0.50 A	15.00 A
	240	20.00 A	10.00 A	15.00 A	230	0.25 A	15.00 A
2 N. O. / 2 N. C. Contacts (Ending in 2 ⁸)	120	30.00 A	3.00 A	10.00 A	115	1.00 A	10.00 A
	240	15.00 A	1.50 A	10.00 A	230	0.30 A	10.00 A

Optional Field-Installed Lug Kit 400–600 A

Field-Installed Lug Kit for 400 and 600 A Devices



Kit consists of three line, three load and two neutral lugs as required for a three-pole 400 A (NEMA Type 1) or 600 A (NEMA Type 1 or 3R) general duty switch.

Table 7 - Field-Installed Lug Kit 400–600 A

Switch Ampere Rating	Lug Kit Catalog Number	Wire Range/NEC	Lug Wire Range
400 or 600 Series ⁹	<i>GD4060LK</i>	1-1/0-600 kcmil 2-1/0-500 kcmil 4-1/0-250 kcmil	2-1/0-600 kcmil 4-1/0-250 kcmil

Class J Fuse Kit 600 A

The Class J Fuse Kit consists of three Class J fuse adapters as required for a two- or three-pole, fusible, 600 A general duty switch.

Table 8 - Class J Fuse Kit 600 A

Switch Ampere Rating	Class J Kit Cat. No.
600 A	<i>GDJK600</i>

5. Electrical interlock kit catalog numbers ending with a “1” indicate one normally open and one normally closed contact; ending with a “2” indicates two normally open and two normally closed contacts. Kits are UL Listed.
 6. Single-pole single-throw interlock kits are rated 1/2 hp at 110 and 220 Vac.
 7. An Electrical interlock catalog number ending in 1 uses a 9007A01 limit switch.
 8. An Electrical interlock catalog number ending in 2 uses a 9007C03 limit switch.
 9. Not suitable for use on 400 A, NEMA Type 3R.

Applications

Light Duty



Light Duty Safety Switches are ideal for home applications in disconnecting power to workshops, hobby rooms, furnaces and garages:

- Visible blades
- 10,000 A short circuit current rating
- 30 A, fusible and non-fusible, 120 Vac, 120/240 Vac
- Replacement parts not available
- Load-make, load-break rated for the switch current rating except L111N
- Horsepower rated except L111N
- Available with plug or cartridge fuse holders
- Grounding kit is standard

General Duty



General Duty Safety Switches are designed for the following applications:

- Residential and light commercial applications
- Infrequent or moderate operations
- 240 Vac maximum
- Up to 100,000 rms symmetrical amperes, using appropriately rated Class R fuses and Class R Fuse Kit, or Class T, or Class J fuses and appropriate Class J Kit
- 30–800 A
- Horsepower rated
- Load-make, load-break rated for the switch current rating

Table 9 - Fusible Safety Switch Short Circuit Current Rating

Fuse Class	UL Listed Short Circuit Rating
Plug	10 kA
H, K	10 kA
J ¹⁰ , R	100 kA
T ¹¹	100 kA

Fuse Class or Circuit Breaker Type ¹²	UL Listed Short Circuit Rating
Any Brand Circuit Breaker	10 kA
B, H, or J PowerPact™ Circuit Breaker	Up to 65 kA ¹³
H, K	10 kA
J, R	100 kA ¹⁴
T	100 kA ¹⁵

10. Only applicable to 200–600 A except D325NT, D325NTR, D326NT and D326NTR.

11. Only applicable to D325NT, D325NTR, D326NT, D326NTR, T327N and T327NR.

12. Ampere rating of fuse or circuit breaker not to exceed switch ampere ratings.

13. Only applicable to DU324 and DU324NRB. BD, HD, JD = 25 kA maximum.

14. SCCR = 50 kA, applicable to DU222RB, DU322 and DU322RB.

15. Only applicable to DU323, DU323RB, DU325 and DU326. Only applicable to DU323, DU323RB, DU325 and DU326.

Standards

General duty safety switches are manufactured in accordance with these standards:

- UL 98, Standard for Enclosed and Dead Front Switches. UL Listed File E2875
- NEMA Standards Publication KS1, Enclosed Switches
- Federal Specifications WS-865c for Type NDS (NEMA Type 1) and Type LD (NEMA Type 3R)

Table 10 - Terminal Lug Data

Ampere Rating ¹⁶	Conductors Per Phase	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
30 ¹⁷	1	12–8 (Al) or 14–8 (Cu)	12–8 (Al) or 14–8 (Cu)
30		12–6 (Al) or 14–6 (Cu)	12–6 (Al) or 14–6 (Cu)
60	1	12–3 (Al) or 14–3 (Cu)	12–2 (Al) or 14–2 (Cu)
100	1	12–1 (Al) or 14–1 (Cu)	12–1/0 (Al) or 14–1/0 (Cu)
200	1	6–250 (Al/Cu)	6–300 (Al/Cu)
400 NEMA Type 1	1 or 2	1/0–600 (Al/Cu) or 1/0–300 (Al/Cu)	(1) 1/0–750 (Al/Cu) or (2) 1/0–300 (Al/Cu)
400 NEMA Type 3R	2	1/0–250 (Al/Cu)	(1) 1/0–600 (Al/Cu) or (2) 1/0–250 (Al/Cu)
600	2	4–500 (Al/Cu)	4–600 (Al/Cu)
800	3	3/0–500 (Al/Cu)	3/0–500 (Al/Cu)

Table 11 - Accessories for Current Series General Duty Safety Switches

Catalog Number	Series	Class J Fuse Kit Available for Field-Installation	Class R Fuse Kit Available for Field-Installation ¹⁸	Fuse Puller Kit	Solid Neutral Kit (Al/Cu)	Equipment Grounding Kit (Al/Cu)	Optional Field Installed Lug Kit (Al/Cu) ¹⁹	Electrical Interlock Kit (1NO/1NC Contacts)	Electrical Interlock Kit (2NO/2NC Contacts)
L111N	E2	—	—	—	Std.	Std.	—	—	—
L211N									
L221N									
D211N	E3	—	—	—	Std.	PK3GTA1	—	—	—
D211NRB	E2								
D221N	E3	—	DRK30	—	Std.	PK3GTA1	—	—	—
D221NRB									
D222N	F1	—	RFK03H	FPK03	Std.	GTK03	—	EIK031	EIK032
D222NRB									
D223N	F3	—	RFK10	FPK0610	Std.	GTK0610	VCE-L02114S1	EIK1	EIK2
D223NRB									
D224N	F1	—	HRK1020	—	Std. ²⁰	PKOGTA2	VCE-L030516-H1	EIK1	EIK2
D224NRB									
D225N	E3	—	DRK40	—	Std.	PKOGTA2 ₂₁	GD4060LK	—	—

16. 30–100 A switches suitable for 140°F (60°C) or 167°F (75°C) conductors. 200–800 A switches suitable for 167°F (75°C) conductors.
 17. Light duty switches only.
 18. When installed, this kit rejects all but Class R fuses.
 19. Enclosed QO200 (60 A) molded case switch.
 20. VCELO2114S1 and VCELO30516H1 are Versa-Crimp™ lugs. GD4060LK is a mechanical lug kit.
 21. Use two PKOGTA2 if grounding conductors are run in parallel.

Table 11 - Accessories for Current Series General Duty Safety Switches (Continued)

Catalog Number	Series	Class J Fuse Kit Available for Field-Installation	Class R Fuse Kit Available for Field-Installation ²²	Fuse Puller Kit	Solid Neutral Kit (Al/Cu)	Equipment Grounding Kit (Al/Cu)	Optional Field Installed Lug Kit (Al/Cu) ²³	Electrical Interlock Kit (1NO/1NC Contacts)	Electrical Interlock Kit (2NO/2NC Contacts)
D225NR	E1						—		
D226N	E3	GDJK600	DRK600	—	Std.	PKOGTA2 ₂₂	GD4060LK	—	—
D226NR	E1								
D321N	E3	—	DRK30	—	Std.	PK3GTA1	—	—	—
D321NRB									
D322N	F1	—	RFK03H	FPK03	Std.	GTK03	—	EIK031	EIK032
D322NRB									
D323N	F3	—	RFK10	FPK0610	Std.	GTK0610	VCE-L02114S1	EIK1	EIK2
D323NRB									
D324N	F1	—	HRK1020	—	Std. ²³	PKOGTA2	VCE-L030516-H1	EIK1	EIK2
D324NRB									
D325N	E3	—	DRK40	—	Std.	PKOGTA2 ₂₂	GD4060LK	—	—
D325NT			—						
D325NR	E1	—	DRK40	—	Std.	PKOGTA2 ₂₂	—	—	—
D325NTR			—						
D326N	E3	GDJK600	DRK600	—	Std.	PKOGTA2 ₂₂	GD4060LK	—	—
D326NT		—	—						
D326NR	E1	GDJK600	DRK600	—	Std.	PKOGTA2 ₂₂	GD4060LK	—	—
D326NTR		—	—						
DU221RB	E2	—	—	—	—	PK3GTA1	—	—	—
DU222RB	E1	—	—	—	—	PK3GTA1	—	—	—
DU321	E2	—	—	—	—	PK3GTA1	—	—	—
DU321RB									
DU322	E1	—	—	—	—	PK3GTA1	—	—	—
DU322RB									
DU323	F3	—	—	—	SN0610	GTK0610	VCE-L02114S1	EIK1	EIK2
DU323RB									
DU324	F1	—	—	—	SN20 ₂₃	PKOGTA2	VCE-L030516-H1	EIK1	EIK2
DU324RB									
DU325	E3	—	—	—	—	PKOGTA2 ₂₂	GD4060LK	—	—
DU326	E3	—	—	—	D600SN	PKOGTA2 ₂₂	GD4060LK	—	—
QO200TR ₂₄	G3	—	—	—	—	Std.	—	—	—
QO260NATS ₂₄	E2				—	Std.			

22. When installed, this kit rejects all but Class R fuses.

23. Enclosed QO200 (60 A) molded case switch.

22. Use two PKOGTA2 if grounding conductors are run in parallel.

23. VCEL02114S1 and VCEL030516H1 are Versa-Crimp™ lugs. GD4060LK is a mechanical lug kit.

24. For 200% neutral, order one additional neutral kit SN20A and one neutral jumper kit SN20NI.

Table 11 - Accessories for Current Series General Duty Safety Switches (Continued)

Catalog Number	Series	Class J Fuse Kit Available for Field-Installation	Class R Fuse Kit Available for Field-Installation ²⁵	Fuse Puller Kit	Solid Neutral Kit (Al/Cu)	Equipment Grounding Kit (Al/Cu)	Optional Field Installed Lug Kit (Al/Cu) ²⁶	Electrical Interlock Kit (1NO/1NC Contacts)	Electrical Interlock Kit (2NO/2NC Contacts)
QO2000NRB ₂₅	E1				Std.	PKOGTA2			
QO2000NS ₂₅	E1				Std.	PKOGTA2			
T327N	E1	—	—	—	Std.	PKOGTA3	—	—	—
T327NR									

Table 12 - 30–800 A Horsepower Ratings General Duty Safety Switches

Catalog Number	Series	Horsepower Ratings					
		120 Vac		240 Vac		240 Vac	
		Std.	Max.	Std.		Max.	
		1Ø	1Ø	1Ø	3Ø	1Ø	3Ø
L111N	E2	—	—	—	—	—	—
L211N		1/2	2	1–1/2		3	
L221N		1/2	2	1–1/2		3	
D211N	E3	1/2	2	1–1/2	—	3	—
D211NRB	E2						
D221N	E3	—	—	1–1/2	3 ²⁶	3	7–1/2 ²⁶
D221NRB							
D222N	F1	1–1/2	3	3	7–1/2 ²⁶	10	15 ²⁶
D222NRB							
D223N	F3	—	—	7–1/2	15 ²⁶	15	30 ²⁶
D223NRB							
D224N	F1	—	—	15	25 ²⁶	—	60 ²⁶
D224NRB							
D225N	E3	—	—	—	—	—	—
D225NR	E1	—	—	—	—	—	—
D226N	E3	—	—	—	—	—	—
D226NR	E1	—	—	—	—	—	—
D321N	E3	—	—	1–1/2	3	3	7–1/2
D321NRB							
D322N	F1	1–1/2	3	3	7–1/2	10	15
D322NRB							
D323N	F3	—	—	7–1/2	15	15	30
D323NRB							
D324N	F1	—	—	15	25	—	60
D324NRB							

25. When installed, this kit rejects all but Class R fuses.

26. Enclosed QO200 (60 A) molded case switch.

25. Enclosed QO2000 (100 A) molded case switch.

26. For corner grounded delta systems only, use switching poles for ungrounded conductors.

Table 12 - 30–800 A Horsepower Ratings General Duty Safety Switches (Continued)

Catalog Number	Series	Horsepower Ratings					
		120 Vac		240 Vac		240 Vac	
		Std.	Max.	Std.		Max.	
		1Ø	1Ø	1Ø	3Ø	1Ø	3Ø
<i>D325N</i>	E3	—	—	—	50	—	125
<i>D325NT</i>		—	—	—	—	—	—
<i>D325NR</i>	E1	—	—	—	50	—	125
<i>D325NTR</i>		—	—	—	—	—	—
<i>D326N</i>	E3	—	—	—	75	—	150
<i>D326NT</i>		—	—	—	—	—	—
<i>D326NR</i>	E1	—	—	—	75	—	150
<i>D326NTR</i>		—	—	—	—	—	—
<i>DU221RB</i>	E2	—	—	—	—	3	—
<i>DU222RB</i>	E1	—	—	—	—	10	—
<i>DU321</i>	E1	—	—	—	—	3	7-1/2
<i>DU321RB</i>		—	—	—	—	—	—
<i>DU322</i>	E2	—	—	—	—	10	15
<i>DU323RB</i>		—	—	—	—	—	—
<i>DU323</i>	F3	—	—	—	—	15	30
<i>DU323RB</i>		—	—	—	—	—	—
<i>DU324</i>	F1	—	—	—	—	15	60
<i>DU324RB</i>		—	—	—	—	—	—
<i>DU325</i>	E3	—	—	—	—	—	125
<i>DU326</i>	E3	—	—	—	—	—	150
<i>QO200TR</i> <small>27</small>	G3	—	—	—	—	10	—
<i>QO260NATS</i> <small>27</small>	E2	—	—	—	—	10	—
<i>QO2000NRB</i> <small>28</small>	E1	—	—	—	—	20	—
<i>QO2000NS</i> <small>28</small>	E1	—	—	—	—	20	—
<i>T327N</i>	E1	—	—	—	100	—	—
<i>T327NR</i>		—	—	—	100	—	100

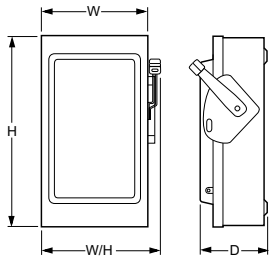
27. Enclosed QO200 (60 A) molded case switch.

28. Enclosed QO2000 (100 A) molded case switch.

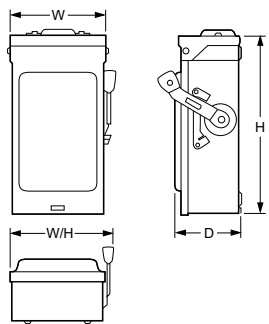
Ratings and Dimensions

Table 13 - Switch Dimensions

Typical NEMA Type 1



Typical NEMA Type 3R



Catalog Number	Series	H		W		W/H		D	
		in.	mm	in.	mm	in.	mm	in.	mm
L111N ₂₉	E2	7.63	194	5.00	127	6.13	156	4.00	102
L211N ₂₉	E2	7.63	194	5.00	127	6.13	156	4.00	102
L221N ₂₉	E2	7.63	194	5.00	127	6.13	156	4.00	102
D211N ₂₉	E3	9.25	235	6.75	171	7.25	184	3.63	92
D211NRB ₂₉	E2	9.63	245	7.25	184	7.75	197	3.75	95
D221N ₂₉	E3	9.25	235	6.75	171	7.25	184	3.63	92
D221NRB ₂₉	E3	9.63	245	7.25	184	7.75	197	3.75	95
D222N	F1	14.60	371	6.51	165	7.45	189	4.87	124
D222NRB	F1	14.88	378	6.63	168	7.45	189	4.87	124
D223N	F3	17.50	445	8.50	216	10.50	267	6.50	165
D223NRB	F3	17.50	445	8.50	216	10.50	267	6.50	165
D224N	F1	29.00	737	17.25	438	19.00	483	8.25	210
D224NRB	F1	29.25	743	17.25	438	19.00	483	8.25	210
D225N ₂₉	E3	45.12	1146	24.00	610	24.88	632	8.88	226
D225NR	E3	30.63	778	21.38	543	22.25	565	10.13	257
D226N ₂₉	E3	49.13	1248	24.00	610	24.88	632	8.88	226
D226NR	E3	49.13	1248	24.75	629	25.13	638	8.88	226
D321N ₂₉	E3	9.25	235	6.75	171	7.25	184	3.63	92
D321NRB ₂₉	E3	9.63	245	7.25	184	7.75	197	3.75	95
D322N	F1	14.60	371	6.51	165	7.45	189	4.87	124
D322NRB	F1	14.88	378	6.63	168	7.45	189	4.87	124
D323N	F3	17.50	445	8.50	216	10.50	267	6.50	165
D323NRB	F3	17.50	445	8.50	216	10.50	267	6.50	165
D324N	F1	29.00	737	17.25	438	19.00	483	8.25	210
D324NRB	F1	29.25	743	17.25	438	19.00	483	8.25	210
D325N ₂₉	E3	45.12	1146	24.00	610	24.88	632	8.88	226
D325NT ₂₉	E3	45.12	1146	24.00	610	24.88	632	8.88	226
D325NR	E1	30.63	778	21.38	543	22.25	565	10.13	257
D325NTR	E1	30.63	778	21.38	543	22.25	565	10.13	257
D326N ₂₉	E3	49.13	1248	24.00	610	24.88	632	8.88	226

29. Does not have a cover draw as indicated in above drawing.

Table 13 - Switch Dimensions (Continued)

Catalog Number	Series	H		W		W/H		D	
		in.	mm	in.	mm	in.	mm	in.	mm
<i>D326NT</i> ₃₀	E3	49.13	1248	24.00	610	24.88	632	8.88	226
<i>D326NR</i>	E1	49.13	1248	24.75	629	25.13	638	8.88	226
<i>D326NTR</i>	E1	49.13	1248	24.75	629	25.13	638	8.88	226
<i>DU221RB</i> ₃₀	E2	9.63	245	7.25	184	7.75	197	3.75	95
<i>DU222RB</i> ₃₀	E1	9.63	245	7.25	184	7.75	197	3.75	95
<i>DU321</i> ₃₀	E2	9.25	235	6.75	171	7.25	184	3.63	92
<i>DU321RB</i> ₃₀	E2	9.63	245	7.25	184	7.75	197	3.75	95
<i>DU322</i> ₃₀	E1	9.25	235	6.75	171	7.25	184	3.63	92
<i>DU322RB</i> ₃₀	E1	9.63	245	7.25	184	7.75	197	3.75	95
<i>DU323</i>	F1	17.50	445	8.50	216	10.50	267	6.50	165
<i>DU323RB</i>	F1	17.50	445	8.50	216	10.50	267	6.50	165
<i>DU324</i>	F1	29.00	737	17.25	438	19.00	483	8.25	210
<i>DU324RB</i>	F1	29.25	743	17.25	438	19.00	483	8.25	210
<i>DU325</i> ₃₀	E3	45.12	1146	24.00	610	24.88	632	8.88	226
<i>DU326</i> ₃₀	E3	49.13	1248	24.00	610	24.88	632	8.88	226
<i>QO200TR</i> ₃₀	G3	6.50	165	4.63	118	—	—	3.88	99
<i>QO260-NATS</i> ₃₀	E2	9.25	235	4.88	124	—	—	3.25	83
<i>QO2000NR-B</i> ₃₀	E1	14.00	356	7.75	197	—	—	4.50	114
<i>QO2000NS</i> ₃₀	E1	13.38	340	6.13	156	—	—	3.50	89
<i>T327N</i> ₃₀	E1	49.13	1248	24.00	610	24.88	632	8.88	226
<i>T327NR</i> ₃₀	E1	49.13	1248	24.75	629	25.13	638	8.88	226

30. Does not have a cover draw as indicated in above drawing.

Catalog Number Description

Table 14 - Heavy Duty Switch Catalog Number Description

Number Segment	Character	Description	H	3	2	1	N	RB	—
Type of Switch	Fusible	H = Heavy duty							
	Non-Fusible	HU = Heavy duty							
Blades – Switched Poles	2	Two-poles							
	3	Three-poles							
	4	Four-poles							
	6	Six-poles							
Voltage Rating	2	240 Vac / 250 Vdc Maximum							
	6	600 Vac / 600 Vdc Maximum							
Ampere Rating	1	30 A							
	2	60 A							
	3	100 A							
	4	200 A							
	5	400 A							
	6	600 A							
	7	800 A							
	8	1200 A							
Neutral	N	Factory-installed neutral (neutrals are field-installable on most heavy duty safety switches).							
Enclosure	No suffix	NEMA Type 1							
	A	NEMA Type 12K							
	AWK	NEMA Type 12 (without Knock Outs)							
	DF	NEMA Type 4X Fiberglass Reinforced Polyester							
	DS	NEMA Type 4, 4X, and 5 (NEMA Type 304 stainless steel)							
	DX	NEMA Type 4X Krydon™ Fiberglass Reinforced Polyester							
	R	NEMA Type 3R							
	RB	NEMA Type 3R (with bolt-on hub provision)							
	SS	NEMA Type 4, 4X, and 5 (NEMA Type 316 stainless steel)							
	See Table 21 on page 24		NEMA Type 7 / 9 (Cast aluminum)						
Factory Modifications	CLR	Class R fuse kit (Rejects all but Class R fuses)							
	EI or EI2	Electrical interlock kit (EI = 1 NO / 1 NC contacts. EI2 = 2 NO / 2 NC contacts)							
	GL	Equipment ground lugs ³¹							

31. Equipment Ground Kits (Al/Cu) are factory installed standard in 30–200 A, Series F, NEMA Type 4/4X/5 (stainless steel), 12 and 12K. Equipment Ground Kits are standard on all receptacle switches and Series F, 30–200 A, four- and six-pole switches.

Table 14 - Heavy Duty Switch Catalog Number Description (Continued)

Number Segment	Character	Description	H	3	2	1	N	RB	—
	LI, SI, or LI2	Voltage indicators ³²							
	KI, KI2 or KIKI	Key interlocks ³³							
	LK	Compression lugs (Heavy Duty 800 A and 1200 A only)							
	LOG ³⁴	Lock-Off Guard							
	NP	Phenolic legend plate. Customer must provide legend text.							
	PB(xx)	Push buttons, pilot lights, selector switches. The customer must provide the catalog number of the control device to be installed (contact Schneider Electric for the complete catalog number).							
	SLC	Copper lugs (30–600 A)							
	SP(xx)	Special paint colors (For suffix xx see Table 40 on page 39)							
	SPLO	Lock-on provision							
	VW	Viewing window							
	WA	Appleton™ interlocked receptacle							
	WC	Crouse-Hinds Arktite™ interlocked receptacle							
	WH	Hubbellock™ interlocked receptacle							

32. LI = Load side indicator. SI = Line side indicator. LI2 = Line and load side indicators.

33. KI = 1 lock. KI2 = 1 lock with 2 cylinders. KIKI = 2 locks.

34. Not available for NEMA Type 4X fiberglass, NEMA Type 4/4X/5 stainless steel and NEMA Type 7/9 enclosures.

Heavy Duty Safety Switches

Product Description

Series F



The Square D™ by Schneider Electric brand Heavy Duty Safety Switch is designed to be tough, reliable and provide exceptional performance in the most grueling conditions; from commercial and institutional to industrial and manufacturing facilities. F Series safety switches provide significantly higher levels of mechanical endurance than NEMA Type KS-1 or UL98 standards require. The design life of a F-Series switch is a minimum of three times the NEMA requirement.

An abundance of copper is used in the heaviest current carrying power paths of all Square D by Schneider Electric Heavy Duty Safety Switches. The more copper for current carrying paths, the lower the temperature rise. Managing temperatures inside the switch is the key to providing greater service life.

All heavy duty safety switches feature a quick-make, quick-break operating mechanism, a dual cover interlock and a color-coded indicator handle.

Applications

Heavy duty safety switches are designed for the following applications:

- Commercial and industrial installations
- Up to 600 Vac or 600 Vdc maximum
- Up to 200,000 rms symmetrical amperes short circuit current
- 30–1200 A
- Horsepower ratings
- Load-make, load-break rated for the switch current rating
- Seismically Qualified to the:
 - 2010 ASCE 7
 - 2012 International Building Code (IBC)
 - 2013 California Building Code (CBC)
 - State of California's Office of Statewide Health Planning and

Standards

Visible Blades



Heavy duty safety switches are manufactured in accordance with these standards:

- UL98, Standard for enclosed and dead front switches. UL Listed;
 - 30–200 A, see file E2875
 - 400–1200 A, see file E154828
- NEMA Standards Publication KS1 and KS2 enclosed switches
- Federal Specifications WS-865C for Type HD

Configuration

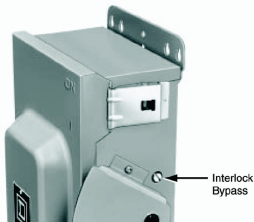
Operating Mechanism Series F



- Two- or three-, fusible switched poles-, with or without, insulated groundable solid neutral
- Four- or six-, fusible switched poles-, without insulated, grounded, solid neutral
- Two-, three-, four-, or six-, non-fusible switched poles-, without insulated, grounded, solid neutral
- Three, fusible switched poles-, without insulated, grounded, solid neutral, interlocked to Appleton™, Crouse-Hinds™, or Hubbellock™ receptacle
- Three, non-fusible switched poles, without insulated, grounded, solid neutral-, interlocked to Appleton, Crouse-Hinds, or Hubbellock receptacle

Construction

Mechanical Lugs

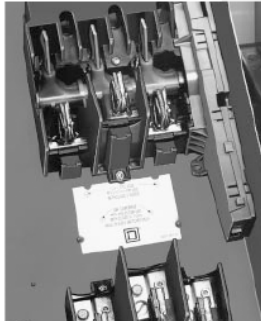


- Visible blades for positive blade position indication
- Optional viewing window allows visual verification of blade position without opening door; not available on NEMA Type 4X fiberglass reinforced polyester enclosures or NEMA Type 7/9 enclosures
- Red and black handle indicates the ON (red) or OFF (black) switch position - except NEMA Type 7/9 enclosures
- Series F handle, mechanism and lock plate are field replaceable
- Side-opening, left hinged covers
- Highly visible embossed ON-OFF marking / ON-OFF labels are used on NEMA Type 4X fiberglass reinforced polyester enclosures
- Quick-make, quick-break, operating mechanism
- Standard with plated aluminum lugs which accept both Cu and Al wires
- Front removable mechanical lugs
- Dual cover interlock prevents the cover from being opened when the switch is ON and prevents the switch from being turned ON when the cover is open
- An interlock bypass is provided for access by authorized personnel

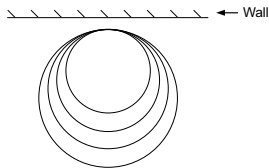
Fuse Pullers



Class J Fuse Provisions Alternate mounting holes make for easy conversion to Class J fuses



Tangential Knockouts



- Factory installed fuse pullers are standard on 30–100 A, NEMA Type 4/4X/5 stainless steel, NEMA Type 4X fiberglass reinforced polyester and NEMA Type 12 or 12K switches; Available as a kit for field installation on 30–100 A, F Series switches, NEMA Type 1 and 3R switches
- 30–600 A switches are shipped with standard Class H fuse spacing. These switches will accept Class R fuses also; A field-installed rejection kit is available, which when installed, rejects all but Class R fuses;
- See page 32 for Class R Fuse Kits
- Fuse load base(s) can be repositioned to accept Class J fuses on
- 30–600 A, 600 V switches and 100–600 A, 240 V switches;
- 600 A switches also require a mounting kit (catalog number H600J)
- Multiple padlock provision in OFF position (three 3/16-5/16 in. (4-7 mm) shank padlocks)
- Provisions to lock ON with one 3/8 in. (9 mm) padlock available factory installed, except for NEMA Type 7/9 and NEMA Type 4X fiberglass reinforced polyester switches
- Tangential knockouts, where provided, lessen the need for conduit offset bends
- Lock-OFF provision is standard on all heavy duty safety switches

Enclosures

NEMA Type 1



NEMA Type 3R



NEMA Type 4/4X/5 Stainless Steel



NEMA Type 12



NEMA Type 4X Fiberglass Reinforced Polyester



NEMA Type 7/9



- NEMA Type 1 general purpose, indoor (ANSI-49 grey paint on cold rolled steel)
 - Knockouts standard on 30–200 A enclosures; top, bottom and sidewalls
- NEMA Type 3R rainproof, outdoor (ANSI-49 grey paint on galvanized steel)
 - Knockouts standard on 30–200 A enclosures; bottom and sidewalls
- NEMA Type 4/4X/5 indoor or outdoor, watertight, dust-tight, and corrosion-resistant (NEMA Type 304 or NEMA Type 316 stainless steel)
- NEMA Type 4X indoor or outdoor, watertight and dust-tight, and corrosion-resistant (fiberglass reinforced polyester)
- NEMA Type 7/9 hazardous locations as defined in NEC® Article 500 (copper free cast aluminum):
 - Class I, Divisions 1 and 2, Groups C and D
 - Class II, Divisions 1 and 2, Groups E, F and G
 - Class III, Divisions 1 and 2
- NEMA Type 12 and 12K indoor, dust-tight, and drip-tight (ANSI-49 grey paint on galvanized steel)
 - NEMA Type 12 has no knockouts (also suitable for NEMA Type 3R outdoor use)
 - NEMA Type 12K provided with knockouts 30–200 A enclosures; top, bottom and sidewalls

Special Application Enclosures

316 Grade Stainless Steel

NEMA Type 316 stainless steel enclosure switches offer superior corrosion resistance to a wider range of chemicals than NEMA Type 304 stainless steel switches. NEMA Type 316 offers better resistance to chloride and is often used in marine, waste treatment and transportation applications.

- UL Listed
- Suitable for service entrance equipment
- Requires water tight hubs (see Table 28 on page 28 for water tight hub catalog numbers)
- Standard with equipment grounding lugs (see Table 30 on page 30 for terminal data)

Table 15 - 316 Grade Stainless Steel Three-Pole 600 Vac, 600 Vdc

Amperes	Cat. No.	Horsepower Ratings - 3Ø				
		480 Vac		600 Vac 1		600 Vdc
		Std.	Max.	Std.	Max.	Max.
Fusible—3P, 600 Vac, 600 Vdc						
30	H361SS	5	15	7-1/2	20	15
60	H362SS	15	30	15	50	30
100	H363SS	25	60	30	75	50
200	H364SS	50	125	60	150	50
400	H365SS	100	250	125	350	50
600	H366SS	150	400	200	500	50
Non-Fusible—3P, 600 Vac, 600 Vdc						
30	HU361SS	—	20	—	30	15
60	HU362SS	—	50	—	60	30
100	HU363SS	—	75	—	100	50
200	HU364SS	—	125	—	150	50
400	HU365SS	—	250	—	350	50
600	HU366SS	—	400	—	500	50

Fiberglass Reinforced Polyester Enclosures—NEMA Type 4X

H363DF



Fiberglass reinforced polyester enclosures are watertight, corrosion resistant and impervious to windblown dust, rain, and splashing liquid. The molded fiberglass is extremely stable in a wide range of operating temperatures and can withstand heavy impact.

- UL Listed and CSA Certified
- Suitable for service entrance equipment (USA only)
- Standard with water tight hubs provided
- Standard with equipment grounding lugs installed (see Table 30 on page 30 for terminal data)

Table 16 - Fiberglass Reinforced Polyester Enclosures NEMA Type 4X Three-Pole 600 Vac, 600 Vdc

Amperes	Cat. No.	Solid Neutral Assembly Kit	Class R Fuse Kits	Electrical Interlock Kits Field Installed Cat. No.		Horsepower Ratings - 3Ø					Hubs ³⁵	
				1NO/1NC Contacts	2NO/2NC Contacts	480 Vac ³⁶		600 Vac ³⁶		600 Vdc ³⁷		
			Cat. No.			Std.	Max.	Std.	Max.	Max.	in.	mm
Fusible—3P, 600 Vac 600 Vdc												
30	H361DF	SN03	RFK06	9999TC10	9999TC20	5	15	7-1/2	20	15	3/4	19
60	H362DF	SN03	RFK06H	9999TC10	9999TC20	15	30	15	50	30	1-1/4	31
100	H363DF	SN0610	RFK10	9999TC10	9999TC20	25	60	30	75	50	2	50
200	H364DF	—	HRK1020	9999R8	9999R9	50	125	60	150	50	2-1/2	63
Non-Fusible—3P, 600 Vac 600 Vdc												
30	HU361DF	SN03	—	9999TC10	9999TC20	—	20	—	30	15	3/4	19
60	HU362DF	SN03	—	9999TC10	9999TC20	—	50	—	60	30	1-1/4	31
100	HU363DF	SN0610	—	9999TC10	9999TC20	—	75	—	75	50	2	50
200	HU364DF	—	—	9999R8	9999R9	—	125	—	150	50	2-1/2	63

Table 17 - Fiberglass Reinforced Polyester 600 Vac Short Circuit Current Rating

Catalog Number	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker	25 kAIR Circuit Breaker
H361DF	H, K	—	J, R	—	—	—
H362DF	H, K	—	J, R	—	—	—
H363DF	H, K	—	J, R	—	—	—
H364DF	H, K	—	J, R	—	—	—
HU361DF	H, K	J, R, T ³⁸	J, R, T	FA	FH	—
HU362DF	H, K	J, R, T ³⁹	J, R, T	FA	FH	—

35. Two hubs and hub drilling template are provided for field installation.
 36. Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.
 37. For switching dc, use two outside switching poles.
 38. SCCR 100 kAIR when protected by R, J or T fuses rated 60 A maximum.
 39. SCCR 100 kAIR when protected by R, J or T fuses rated 100 A maximum.

Table 17 - Fiberglass Reinforced Polyester 600 Vac Short Circuit Current Rating (Continued)

Catalog Number	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker	25 kAIR Circuit Breaker
HU363DF	H, K	J, R, T ⁴⁰	J, R, T	FA	FH	—
HU364DF	H, K	J, R, T ⁴¹	J, R, T	—	—	LH

Krydon™ Enclosures—NEMA Type 4X

H361DX



Krydon enclosures are compression molded of fiberglass reinforced polyester, specially formulated to withstand attack from almost any corrosive atmosphere found in the toughest industrial application.

- UL Listed
- Suitable for use as service equipment
- Standard with water tight hubs provided
- Standard with equipment grounding lugs installed (see Table 30 on page 30 on for terminal data)

Table 18 - Krydon Enclosures—NEMA Type 4X Three-Pole 600 Vac, 600 Vdc

Am-peres	Cat. No.	Solid Neutral Assembly Kit	Class R Fuse Kits	Electrical Interlock Kits Field Installed Cat. No.		Horsepower Ratings—3Ø					Hubs	
				1NO/1NC Contacts	2NO/2NC Contacts	480 Vac		600 Vac 2		600 Vdc	in.	mm
			Cat. No.	Std.	Max.	Std.	Max.	Max.				
Fusible—3P, 600 Vac 600 Vdc												
30	H361DX	H60SN	RFK06	9999TC10	9999TC20	5	15	7-1/2	20	15	3/4	19
60	H362DX	H60SN	RFK06	9999TC10	9999TC20	15	30	15	50	30	1-1/4	31
100	H363DX	SN0610	RFK10	9999TC10	9999TC20	25	60	30	75	50	2	50
Non-Fusible—3P, 600 Vac 600 Vdc												
30	HU361DX	H60SN	—	9999TC10	9999TC20	—	20	—	30	15	3/4	19
60	HU362DX	H60SN	—	9999TC10	9999TC20	—	50	—	60	30	1-1/4	31
100	HU363DX	SN0610	—	9999TC10	9999TC20	—	75	—	75	50	2	50

Table 19 - Krydon 600 Vac Short Circuit Current Rating

Catalog Number	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker
H361DX	H, K	—	J, R	—	—
H362DX	H, K	—	J, R	—	—
H363DX	H, K	—	J, R	—	—
HU361DX	H, K	J, R, T ⁴²	J, R, T	FA	FH

40. SCCR 100 kAIR when protected by R, J or T fuses rated 200 A maximum.

41. SCCR 100 kAIR when protected by R, J or T fuses rated 400 A maximum.

42. SCCR 100 kAIR when protected by R, J or T fuses rated 60 A maximum.

Table 19 - Krydon 600 Vac Short Circuit Current Rating (Continued)

Catalog Number	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker
HU362DX	H, K	J, R, T ⁴³	J, R, T	FA	FH
HU363DX	H, K	J, R, T ⁴⁴	J, R, T	FA	FH

NEMA Type 7/9

H60XBD



An enclosed automatic molded case switch for use in divisions 1 and 2 of the following: Class I, Group C and D; Class II, Groups E, F and G; or Class III, Hazardous Locations as defined in the NEC Article 500.

- cULus Listed
- Suitable for use as service equipment
- “Raintight” for outdoor applications
- Standard with threaded conduit opening in both top and bottom endwall
- Standard with equipment grounding lugs installed (see Table 30 on page 30 for terminal data)

Table 20 - NEMA Type 7/9, Three-Pole Molded Case Switch, 600 Vac, 250 Vdc For switching dc, Short Circuit Current Rating 10 kA AIR

Amperes	Enclosed Molded Case Switch ⁴⁵	Solid Neutral Assembly	Horsepower Ratings—3Ø ⁴⁶			Size of Threaded Conduit Openings Provided ⁴⁷	
	Cat. No.	Cat. No.	240 Vac	480 Vac	600 Vac	in.	mm
60	H60XBD	100SNA	15	30	50	3/4	19
60	H60XBDAA ₄₈	100SNA	15	30	50	3/4	19
100	H100XBD	100SNA	30	60	75	1-1/4	31
100	H100XBDAA ₄₈	100SNA	30	60	75	1-1/4	31
225	H225XJG ₄₉	225SNA	60	125	150	2-1/2	63
225	H225XJGAA _{48 49}	225SNA	60	125	150	2-1/2	63

Receptacle Switches

Interlocked receptacle switches are furnished with a factory-installed, three-phase, four-wire, Appleton Powertite™, Crouse-Hinds Style 2 Arktite™ or Hubbellock™ receptacle. The fourth wire is connected to the switch equipment grounding terminal and is not a solid neutral termination. Interlocking linkage between the receptacle and switch mechanism prevents insertion or removal of the plug while the switch is in the “ON” position or insertion of any plug other than specified. The interlocking mechanism also prevents the switch from being turned “ON” if a plug has not been fully inserted into the receptacle.

43. SCCR 100 kAIR when protected by R, J or T fuses rated 100 A maximum.
 44. SCCR 100 kAIR when protected by R, J or T fuses rated 200 A maximum.
 45. Includes PKDB1, breather and drain kit, required for rainproof application.
 46. For switching dc, see PowerPact B or PowerPact J catalog for Vdc wiring details. Not for use on dc motor applications.
 47. Threaded conduit opening provided in top and bottom endwall.
 48. Includes 1NO/1NC auxiliary contacts.
 49. Not cULus listed due to wire bending space.

Appleton Powertite™ Receptacle

**H362AWA
Interlocked
Receptacle Switch
with Appleton
Powertite
Receptacle**



- UL Listed and CSA Certified
- Available in 30–100 A, 600 Vac / 250 Vdc, fused or non-fused, NEMA Type 1, NEMA Type 4/4X/5 stainless steel and NEMA Type 12/3R
- Suitable for use as service equipment (USA only)
- Receptacles are epoxy powder coated over copper-free cast aluminum

Table 21 - Appleton Powertite Receptacle Safety Switch Horsepower Ratings

Amperes	NEMA Type 1	NEMA Type 3, 3R, 4, 4X, 5 and 12 304 Stainless Steel	NEMA Type 12 and 3R	Use with Plug ⁵⁰	Horsepower Ratings—3Ø								
					Cat. No.	Cat. No.	Cat. No.	480 Vac ⁵¹		600 Vac ⁵¹		250 Vdc ⁵²	
								Std.	Max.	Std.	Max.	Std.	Max.
Fusible—3P, 600 Vac 250 Vdc													
30	H361WA	H361DSWA	H361AWA	ACP3034BC	5	15	7-1/2	20	5	—			
60	H362WA	H362DSWA	H362AWA	ACP6034BC	15	30	15	50	10	—			
100	H363WA	H363DSWA	H363AWA	ACP1034CD	25	60	30	75	20	—			
Non-Fusible—3P, 600 Vac 250 Vdc													
30	HU361WA	HU361DSWA	HU361AWA	ACP3034BC	—	20	—	30	—	5			
60	HU362WA	HU362DSWA	HU362AWA	ACP6034BC	—	50	—	60	—	10			
100	HU363WA	HU363DSWA	HU363AWA	ACP1034CD	—	75	—	100	—	20			

Table 22 - Appleton Powertite 600 Vac Short Circuit Current Rating

Amperes	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker
Fusible—3P, 600 Vac 250 Vdc					
30	H, K	—	J, R	—	—
60	H, K	—	J, R	—	—
100	H, K	—	J, R	—	—
Non-Fusible—3P, 600 Vac 250 Vdc					
30	H, K	J, R, T ⁵³	J, R, T	FA	FH
60	H, K	—	J, R, T	FA	FH
100	H, K	—	J, R, T	FA	FH

50. Receptacle UL listed for use with Appleton™ ACP or CPH plugs; UL Classified for use with Crouse-Hinds APJ Arkrite™ plugs. See *Appleton Powertite Receptacle*, page 27.

51. Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.

52. For switching dc, use two outside switching poles.

53. SCCR when using 60 A Max fuse.

Crouse-Hinds Arktite™ Receptacle

H362WC Interlocked Receptacle Switch with Crouse-Hinds Arktite Receptacle



- UL Listed
- Available in 30–100 A, 600 Vac / 250 Vdc, fused or non-fused, NEMA Type 1, NEMA Type 4/4X/5 stainless steel and NEMA Type 12/3R
- Suitable for use as service equipment
- Receptacles are cast aluminum and copper free for NEMA Type 1 and NEMA Type 12/3R safety switches.
- Receptacles are epoxy powder coated and copper free cast aluminum for NEMA Type 4/4X/5 stainless steel safety switches.

Table 23 - Crouse-Hinds Arktite Safety Switch Horsepower Ratings

Amperes	NEMA Type 1	NEMA Type 4/4X/5 304 Stainless Steel	NEMA Type 12/3R	Use with Plug	Horsepower Ratings—3Ø					
	Cat. No.	Cat. No.	Cat. No.	Cat. No.	480 Vac ⁵⁴		600 Vac ⁵⁴		250 Vdc ⁵⁵	
					Std.	Max.	Std.	Max.	Std.	Max.
Fusible—3P, 600 Vac 250 Vdc										
30	H361WC	H361DSWC	H361AWC	APJ3485	5	15	7-1/2	20	5	—
60	H362WC	H362DSWC	H362AWC	APJ6485	15	30	15	50	10	—
100	H363WC	H363DSWC	H363AWC	APJ10487	25	60	30	75	20	—
Non-Fusible—3P, 600 Vac 250 Vdc										
30	HU361WC	HU361DSWC	HU361AWC	APJ3485	—	20	—	30	—	5
60	HU362WC	HU362DSWC	HU362AWC	APJ6485	—	50	—	60	—	10
100	HU363WC	HU363DSWC	HU363AWC	APJ10487	—	60	—	100	—	20

Table 24 - Crouse-Hinds 600 Vac Short Circuit Current Rating

Amperes	10 kAIR Fuses	100 kAIR Fuses	200 kAIR Fuses	14 kAIR Circuit Breaker	18 kAIR Circuit Breaker
Fusible—3P, 600 Vac 250 Vdc					
30	H, K	—	J, R	—	—
60	H, K	—	J, R	—	—
100	H, K	—	J, R	—	—
Non-Fusible—3P, 600 Vac 250 Vdc					
30	H, K	J, R, T ⁵⁶	J, R, T	FA	FH
60	H, K	—	J, R, T	FA	FH
100	H, K	—	J, R, T	FA	FH

54. Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.

55. For switching dc, use two outside switching poles.

56. SCCR when using 60 A Max fuse.

Hubbellock™ Receptacle

**H362AWH
Interlocked
Receptacle Switch
with Hubbellock
Receptacle**



- UL Listed
- Available in 30–100 A, 600 Vac / 250 Vdc, fused or non-fused, NEMA Type 1, NEMA Type 4/4X/5 stainless steel and NEMA Type 12/3R
- Suitable for use as service equipment
- Receptacles are zinc plated steel for NEMA Type 1 and NEMA Type 12 safety switches
- Short Circuit Current Rating for fusible switches is 10 kAIR maximum when used with Class H, K, J or R fuses
- Short Circuit Current Rating for non-fusible switches is 10 kAIR maximum when protected by Class H, K, J, R or T fuses

Table 25 - Hubbellock Receptacle Safety Switch Horsepower Ratings

Amperes	NEMA Type 1	NEMA Type 12	Use with Plug ⁵⁷	Horsepower Ratings—3Ø			
	Cat. No.	Cat. No.	Cat. No.	480 Vac ⁵⁸		600 Vac ⁵⁸	
				Std.	Max.	Std.	Max.
Fusible—3P, 600 Vac							
60	H362WH	H362AWH	SD12781	15	30	15	50
Non-Fusible—3P, 600 Vac							
60	HU362WH	HU362AWH	SD12781	—	50	—	60

57. Hubbell plug is furnished with a Kellems grip for 1-1/2 in. (38 mm) to 1-21/64 in. (33 mm) cable diameter.

58. Std.—Using fast acting one time fuses. Max.—Using dual element time delay fuses.

Accessories

Square D by Schneider Electric brand heavy duty safety switches are UL Listed for use with the following accessories:

Rainproof Bolt-On Hubs



Order bolt-on hubs separately from *Rainproof Bolt-on*, page 30.

- UL Listed for indoor or rainproof applications
- Suitable for use with conduit having ANSI standard taper pipe thread
- NEMA Type 3R enclosures with catalog number ending in RB have a bolt-on closing cap factory installed
 - Accepts 3/4 in. (19 mm) through 2-1/2 in. (63 mm) bolt-on hubs
- Switches with R suffix have blank top endwalls
 - Accepts 3 in. (76 mm) through 4 in. (101 mm) bolt-on hubs
 - Conduit entry holes must be cut in the field

Table 26 - Rainproof Bolt-on

Conduit Size	3/4	19	1	25	1-1/4	31	1-1/4	38	2	50	2-1/2	63	3	76	3-1/2	88	4	101	Closing Cap
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	m-m	in.	mm	in.	mm	
Hub Cat. Number	B075		B100		B125		B150		B200		B250		B300		B350		B400		BC-AP

Watertight Hubs



- UL Listed for dust tight and watertight applications
- Suitable for use with conduit having ANSI standard taper pipe thread
- Watertight hubs are field installed on NEMA Type 4/4X/5 stainless steel and
- NEMA Type 12/3R and 12K enclosures
- Watertight hubs are available in zinc or chrome plated finish

Table 27 - Watertight Hubs

Conduit Trade Size ⁵⁹	1/2	12	3/4	19	1	25	1-1/4	38	1-1/2	38	2	50	2-1/2	63	3	76	3-1/2	88	4	101
	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m	in.	m-m
Standard Zinc Hub Cat. Number	H050		H075		H100		H125		H150		H200		H250		H300		H350		H400	
Chrome Plated Hub Cat. Number	H050CP		H075CP		H100CP		H125CP		H150CP		H200CP		—		—		—		—	

59. Gaskets are provided.

Solid Neutral Assemblies HDSS

- Factory or field-installed, insulated, groundable, solid neutral assemblies

**Field-installed
Insulated, Grounded
Neutral**



Table 28 - Solid Neutral Assembly Kits

Amperes ^{60 61 62 63}	Series ⁶⁴	Neutral Kit Catalog Number	Terminal Data AWG/kcmil	Optional Copper Only Catalog Number	Terminal Data AWG/kcmil
30	F5-F6	SN03 ⁶⁵	(2) 14-3 Al/Cu plus (1) 14-3 Al/Cu Svc Ground	SN03C ⁶⁵	(2) 14-6 Cu plus (1) 14-6 Cu Svc Ground
60	F5-F6 (600 V)	SN0610	(2) 14-1/0 Al/Cu plus (2) 14-6 Al/Cu Svc Ground	SN0610C	(2) 14-1/0 Cu plus (2) 14-6 Cu Svc Ground
	F5-F6 (240 V)	SN03	(2) 14-3 Al/Cu plus (1) 14-3 Al/Cu Svc Ground	SN03C	(2) 14-1/0 Cu plus (2) 14-6 Cu Svc Ground
100	F5-F6	SN0610	(2) 14-1/0 Al/Cu plus (2) 14-6 Al/Cu Svc Ground	SN0610C	(2) 14-1/0 Cu plus (2) 14-6 Cu Svc Ground
200 ⁶⁶	F5-F6	SN20A	(2) 6-250 Al/Cu plus (1) 14-10 Al/Cu Svc Ground	SN20C	(2) 6-250 Cu plus (1) 14-1/0 Cu Svc Ground
400 and 600	E4-E5	H600SN	(4) 1-750 Al/Cu plus (1) 4-300 Al/Cu Svc Ground	H600SNC	(2) 1-600 Cu plus and (2) 4-350 Cu plus (2) 6-250 Cu Svc Ground
800	E4	H800SNE4	(6) 3/0-750 Al/Cu plus (2) 6-350 Al/Cu Svc Ground	—	—
1200	E4	H1200SNE4	(8) 3/0-750 Al/Cu plus (2) 6-350 Al/Cu Svc Ground	—	—

Equipment Grounding Kits

Equipment grounding kits available for factory or field installation.

- UL Listed
- For factory installation add suffix GL

GTK0610 Field-installed Equipment Grounding Kit



60. For series not shown in chart refer to the switch wiring diagram.
 61. For Solid Neutral Assembly Kits for Krydon™ enclosures, see Table 19 on page 24.
 62. For Solid Neutral Assembly Kits for Fiberglass Reinforced Polyester enclosures, see Table 17 on page 23.
 63. Neutrals cannot be installed in four- or six-pole switches or receptacle switches.
 64. See page 58 through 62 for safety switch series.
 65. The following 30 A Series F5-F6 switches use SN0610 or SN0610C: H3612, H3612RB, H3612A, H3612AWK, HU3612, HU3612RB, HU3612A and HU3612AWK.
 66. For 200% neutral, order two SN20A Neutral Kits and one SN20NI Neutral Jumper Kit.

Table 29 - Equipment Grounding Kits and Terminal Data

Amperes ^{67 68}	Series ⁶⁹	Catalog Number	Terminal Data AWG/kcmil	Optional Copper Only Catalog Number	Terminal Data AWK/kcmil
30	F5-F6	GTK03 ₇₀	(2) 14-4 Cu or (2) 12-4 Al or (4) 14-12 Cu or (4) 12-10 Al	GTK03C _{70 71}	(2) 14-6 Cu
60	F5-F6 (600 V)	GTK0610	(2) 14-1/0 Cu or (2) 12-1/0 Al and (2) 14-6 Cu or (2) 12-6 Al	GTK0610C	(2) 14-1/0 Cu and (2) 14-6 Cu
60	F5-F6 (240V)	GTK03	(2) 14-4 Cu or (2) 12-4 Al or (4) 14-12 Cu or (4) 12-10 Al	GTK03C	(2) 14-6 Cu
100	F5-F6	GTK0610	(2) 14-1/0 Cu or (2) 12-1/0 Al and (2) 14-6 Cu or (2) 12-6 Al	GTK0610C	(2) 14-1/0 Cu and (2) 14-6 Cu
200	F5-F6	PKOGTA2	(2) 10-2/0 Cu or (2) 6-2/0 Al	PKOGTC2	(2) 14-4 Cu
400 and 600	E4-E5	PKOGTA2 ₇₂	(2) 10-2/0 Cu or (2) 6-2/0 Al	PKOGTC3	(4) 14-1/0 Cu
800	E4	PKOGTA7	(4) 4-350 Al/Cu	—	—
1200	E4	PKOGTA8	(8) 4-350 Al/Cu	—	—

Cover Viewing Window

Cover Viewing Window



The optional cover viewing window is positioned over the blades to allow visual verification of the ON-OFF status. Available on 30 through 1200 A heavy duty switches.

- UL Listed
- Factory installed only
- Add a VW suffix to the catalog number for factory installation
- Not available on NEMA Type 4X fiberglass reinforced polyester, Krydon™ or NEMA Type 7/9 enclosures

67. For series not shown in chart refer to the switch wiring diagram.

68. Equipment ground kits (Al/Cu) are factory installed standard in 30–200 A Series F NEMA Type 4/4X/5 (stainless steel), 12 and 12K. Equipment ground kits are standard factory installed on all receptacle switches and all enclosure Series F 30–200 A, four- and six-pole switches.

69. See page 57 through page 61 for safety switch series.

70. H2212AWK accepts GTK03 or GTK03C. H3612A or AWK accepts GTK03C. H3612 and H3612RB accepts GTK0610. HU3612AWK accepts GTK03C. HU3612A accepts GTK0610C. HU3612RB accepts GTK0610 or GTK0610C.

71. Optional copper equipment grounding kit for the four- and six-pole 30 A F Series: H461DS, H461AWK, HU461DS, HU661DS and HU661AWK accepts GTK03C. HU461AWK accepts GTK0610C.

72. Two required if equipment grounding conductors are run in parallel.

Electrical Interlock Kits HDSS

EIK2 Electrical Interlock Kit



Electrical interlocks for heavy duty safety switches, 30 through 1200 A, are available factory installed or in kit form for field installation. A pivot arm operates from the switch mechanism, breaking the control circuit before the main switch blades break.

- UL Listed, factory or field installed

Table 30 - Electrical Interlock Kit

Switch Ampere Rating ^{73 74}	Series ⁷⁵	Catalog Number ⁷⁶
30	F5-F6	EIK031
		EIK032
60 (600 V)	F5-F6	EIK1
		EIK2
60 (240 V)	F5-F6	EIK031
		EIK032
100–200	F5-F6	EIK1
		EIK2
30–100 Receptacle Switches	F5-F7	EIK1
		EIK2
30–200 Four- and Six-Pole Switches	F5-F6	EIK1
		EIK2
400–1200	E4-E5	EIK40601
		EIK40602

Table 31 - Electrical Interlock Contact Ratings

Interlock Type ⁷⁷	AC 50 or 60 Hz				DC		
	Volts	Make	Break	Cont.	Volts	Make and Break	Cont.
1 N.O./1 N.C Contact ⁷⁸	120	40.0 A	15.0 A	15.0 A	115	0.50 A	15.0 A
	240	20.0 A	10.0 A	15.0 A	230	0.25 A	15.0 A
	480	10.0 A	6.0 A	15.0 A	—	—	—
	600	8.0 A	5.0 A	15.0 A	600	0.05 A	15.0 A
2 N.O./2 N.C Contact ⁷⁹	120	30.0 A	3.0 A	10.0 A	115	1.00 A	10.0 A
	240	15.0 A	1.5 A	10.0 A	230	0.30 A	10.0 A
	480	7.5 A	0.75 A	10.0 A	—	—	—
	600	6.0 A	0.60 A	10.0 A	600	0.10 A	10.0 A

73. For series not shown in table refer to the switch wiring diagram.

74. Electrical interlocks for NEMA Type 4X fiberglass reinforced polyester and Krydon™, see Table 17 on page 22 and Table 19 on page 23 respectively.

75. See page 57 through 61 for safety switch series.

76. Electrical interlock kit catalog numbers ending with the number 1, indicates one normally open and one normally closed contact. These kits use a 9007AO1 industrial snap switch. Electrical interlock kit catalog numbers ending with the number 2, indicates two normally open and two normally closed contacts. These kits use a 9007CO3 industrial snap switch.

77. Single-pole single-throw interlock kits are rated 1/2 hp at 110 and 220 Vac.

78. Catalog numbers ending in 1 use a 9007AO1 limit switch.

79. Catalog numbers ending in 2 use a 9007CO3 limit switch.

Class R Fuse Kits

Class R Fuse Kits



When installed, the Class R Fuse Kit rejects all but Class R fuses.

- UL Listed
- For factory installation, add CLR to the catalog number
- For systems having up to 200,000 rms symmetrical amperes fault current available
- One kit is required for a three-pole switch

Table 32 - 240 Vac — Class R Fuse Kits

Amperes ⁸⁰	Series ⁸¹	Class R Fuse Kit Catalog Number
30	F5–F6	<i>RFK03L</i>
60	F5–F6	<i>RFK03H</i>
100	F5–F6	<i>RFK10</i>
200	F5–F6	<i>HRK1020</i>
400–600	E4–E5	<i>HRK4060</i>

Table 33 - 600 Vac — Class R Fuse Kits

Amperes ^{80/82}	Series ⁸³	Class R Fuse Kit Catalog Number
30 ⁸⁴	F5–F6	<i>RFK03H</i>
30 A Receptacle Switches	F7	<i>RFK06</i>
30 A Four-Pole Switches	F5–F6	<i>RFK06</i>
60	F5–F7	<i>RFK06H</i>
100	F5–F7	<i>RFK10</i>
200	F5–F6	<i>HRK1020</i>
400–600	E4–E5	<i>HRK4060</i>

Fuse Puller Kits

Fuse Puller Kits



- Fuse Puller Kits are standard equipment on the following 30–100 A switches:
 - NEMA Type 12 and 12K
 - NEMA Type 4/4X/5 stainless steel
 - NEMA Type 4X fiberglass reinforced polyester, and Krydon™
- Fuse Puller Kit available for field installation on NEMA Type 1 and NEMA Type 3R, 30–100 A switches
 - One Fuse Puller Kit required for a three-pole, fusible, 240 V or 600 V heavy duty switch.
 - Fuse Puller Kits can be field installed on switches manufactured since February, 1980

80. For series not shown in table refer to the switch wiring diagram.

81. See page 57 through page 61 for safety switch series.

82. Class R Fuse Kits for Fiberglass Reinforced Polyester enclosures and Krydon™ enclosures see Table on page 22 and Table 19 on page 23 respectively.

83. See page 57 through page 61 for safety switch series.

84. H361-2, H361-2A, H361-2AWK and H361-2RB use RFK06.

Copper Lug Kits

Copper lug kits available for field or factory installation.

- UL Listed
- NEMA Type 12/12K and NEMA Type 4/4X/5 stainless steel switches, UL Marine Listed
 - Available on 30–200 A safety switches
 - Factory installed copper lug kit bear the manifest for use on vessels over sixty-five feet long
 - Field installed copper lug kit do not bear the manifest for use on vessels over sixty-five feet long
- For field installation, order copper lug kits, see Table 35 below
- For factory installation of copper lugs add suffix SLC to catalog number

Table 34 - Copper Lug Kit

Amperes ⁸⁵	Copper Lug Kit Catalog Number	Lug Wire Range AWG/kcmil
30–60	CL0306F	(1) 14–8 Cu solid or 14–4 Cu stranded
100	CL10F	(1) 14–8 Cu solid or 14–1/0 Cu stranded
200	CL20F	(1) 6–250 Cu
400	CL40F	(1) 1–600 Cu plus (1) 6–250 Cu
600	CL60F	(2) 4–350 Cu
800	—	—
1200	—	—

Double Lug Kits

200 A heavy duty F-series switches are supplied standard with lugs suitable for one wire per phase. For two wires per phase and neutral, order the Double Lug Kit.

Table 35 - Double Lug Kits

Amperes	Catalog Number ⁸⁶	Lug Wire Range per Phase and Neutral AWG/kcmil	Wire Range Wire Bending Space per NEC Table 312.6 AWG/kcmil
200	AL20DTF	(2) 6–300 Cu/Al	(2) 6–250 Cu/Al

85. One kit includes all phase line/load lugs for a three-pole switch. CL0306F, CL10F and CL20F includes six lugs. CL40F and CL60F includes twelve lugs.

86. Kit contains 3 lugs. Order two kits for line and load lugs.

Compression Lug Kits: 800 A and 1200 A Safety Switches

- UL Listed
- Compression Lug Kits available for field installation
- Compression Lug Kits available for factory installation; Add suffix LK to standard catalog number
- Compression Lug Kits contain VCEL07512H1 Versa-Crimp™ Compression Lugs
- Order one Compression Lug Kit per switching pole and/or neutral, see Table 37 below

Table 36 - Compression Lug Kits

Amperes	Catalog Number	Conductors Per Phase	Lug Wire Range AWG/kcmil
800	<i>H8LKE2</i>	(3) Line and (3) Load	500–750 kcmil (Al) or 500 kcmil (CU)
1200	<i>H12LKE2</i>	(4) Line and (4) Load	500–750 kcmil (Al) or 500 kcmil (CU)

Key Interlock System



Interlocks are used to prevent the operator from making an unauthorized operation. The key interlock system is a simple and easy method to ensure require operation in a predetermined sequence.

- UL Listed
- Factory installed on heavy duty and double throw safety switches:
 - Not available on hazardous location devices (NEMA Type 7 and 9)
 - Not available on fiberglass reinforced polyester (NEMA Type 4X)
- Add suffixes on switch catalog numbers as noted below:
 - KI = 1 lock per switch
 - KI2 = 1 lock with 2 cylinders per switch
 - KIKI = 2 separate locks per switch

Sample Applications

1. To prevent two devices from being closed simultaneously:

Locking Position—Designations

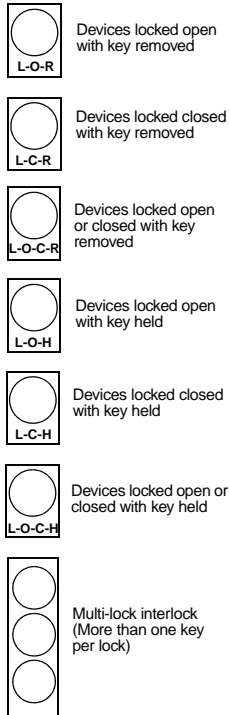


Diagram Symbols

NOTE: Device locked open = switch in OFF (O) position. Device locked closed = switch in ON (I) position.

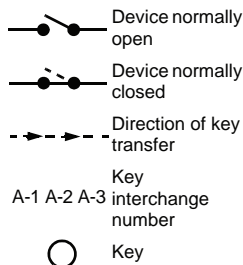


Figure 1 - Sample Application

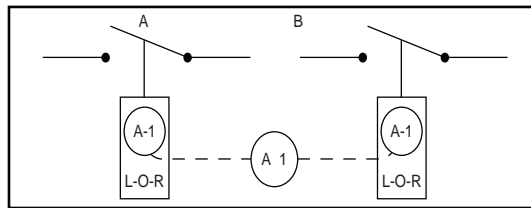


Figure 1 shows two devices that are not to be closed at the same time. Using key interlocks shown, only one key is required to operate the system

- Both devices are shown open, therefore, the key is free
- To close any one device insert the key and turn that particular lock
- The key is held in this lock until the device is locked open
- The procedure described above is the same for two devices, neither of which is to be opened simultaneously

2. To prevent the opening of switch A when circuit breaker B is closed:

Figure 2 - Sample Application

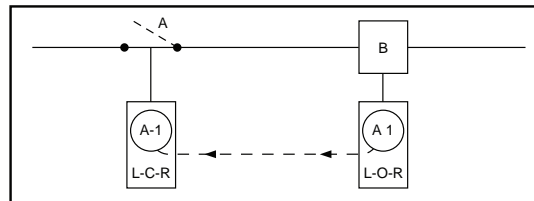
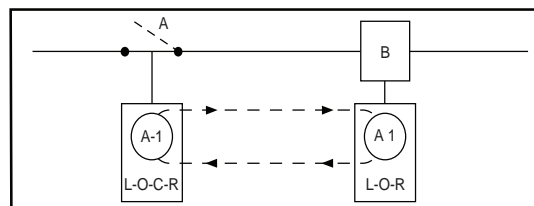


Figure 2 shows switch A and circuit breaker B in the closed position.

- Key A-1 is held in circuit breaker B interlock
- Open the circuit breaker
- Turn key A-1 in the L-O-R interlock on circuit breaker B to lock open; Key A-1 is now free
- Insert key A-1 in the L-C-R interlock on switch A and turn to unlock
- Open switch A. Key A-1 is now held; Reverse the sequence to restore service

3. To prevent operation of switch A when circuit breaker B is closed. Permits re-closing of the circuit breaker for servicing when switch is locked open:

Figure 3 - Sample Application

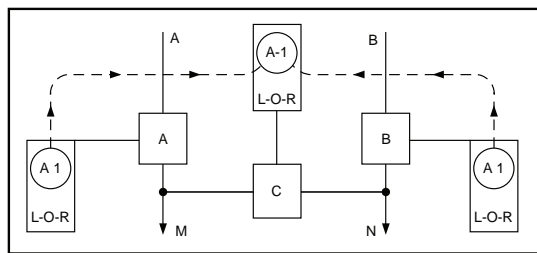


Switch A and circuit breaker B are in the closed position.

- Key A-1 is held in the circuit breaker interlock

- Open the circuit breaker
 - Turn key A-1 in the L-O-R interlock on circuit breaker B to lock open; Key A-1 is now free
 - Insert key A-1 in the L-O-C-R interlock on switch A and turn to unlock
 - Open switch A; Key A-1 is now held
 - Turn key A-1 in the L-O-C-R interlock on switch A to lock open; Key A-1 is now free
 - Return key A-1 to circuit breaker interlock and unlock for operating during servicing period
 - Reverse the sequence to restore service
4. **To prevent paralleling of lines A and B; two loads, fed from either source (Main-Tie-Main):**

Figure 4 - Sample Application



Circuit breaker A is closed to supply load M. Circuit breaker B is closed to supply load N. Tie-circuit breaker C is open. Keys A-1 are held in interlocks on both circuit breakers A and B. Tie-circuit breaker C cannot be closed unless either A or B is locked open.

To transfer load N to circuit breaker A, proceed as follows:

- Open circuit breaker B
- Turn key A-1 in L-O-R interlock on circuit breaker B to lock open; Key A-1 is now free
- Insert key A-1 in L-O-R interlock on tie-circuit breaker C and turn to unlock; Key A-1 is now held
- Close tie-circuit breaker C
- Reverse the sequence to restore service
- Load M can be supplied through circuit breaker B in a similar manner

Lock-Off Guard Kits

Optional Lock-Off Guard Kit Installed



- UL Component Recognized; Marked



- Lock-Off Guard Kits are available for field installation, see *Lock-Off Guard Kits*, page 39
- Lock-Off Guard Kits are available factory installed by adding LOG suffix to switch catalog number
- Lock-Off Guard Kits cover the lockout/tagout opening when switch is in the ON position
- Lock-Off Guard Kits are designed to help prevent accidental misapplication of a lockout/tagout device

Table 37 - Lock-Off Guard Kits

Switch Rating Not available for NEMA Type 4X fiberglass, Krydon, NEMA Type 4/4X/5 stainless steel and NEMA Type 7/9 switches.	Catalog Number
30 A	LOGK1
60 A 240 V	
60 A 600 V	LOGK2
100 and 200 A	

Lock-ON Provisions

UL Listed

- Lock-ON Provisions allow the switch to be locked in the “ON” position
- Lock-ON Provisions are factory installed only by adding suffix SPLO
- Lock-ON Provisions accept one 3/8 in. (9 mm) hasp padlock
- Lock-ON Provisions are available factory installed on 30–1200 A, NEMA Type 1, 3R, 4/4X/5 stainless steel, 12 and 12K switches

Internal Barrier Kits

Internal Barrier



- UL Component Recognized; Marked



- Internal Barrier Kits are field installed only
- Internal Barrier Kits provide IEC529 IP2X “finger safe” protection when door of enclosed disconnect switch is open
- Internal Barrier Kits are transparent; allows visual inspection of the switch
- Internal Barrier Kits’ convenient door allows:
 - Use of test probes without accessing fuses
 - Replacement of fuses without removing barrier
- Internal Barrier Kits helps prevent accidental contact with live parts

Table 38 - Internal Barrier Kits

Catalog Number	Description	Safety Switch Application (F Series Only)
SS03	Interior Barrier for 30 A and 240 V, 60 A Safety Switch ⁸⁷	240 / 600 Vac, 30 A 240 Vac, 60 A
SS06	Interior Barrier for 600 V, 60 A Safety Switch	600 Vac, 60 A
SS10	Interior Barrier for 240/600 V, 100 A Safety Switch	240 / 600 Vac, 100 A
SS20	Interior Barrier for 240/600 V, 200 A Safety Switch	240 / 600 Vac, 200 A
SS4060LI	Barrier Line Side 600 V, 400–600 A HDSS	600 Vac, 400–600 A
SS4060LO ₈₈	Barrier Load Side 600 V, 400–600 A HDSS	
SS80120LI	Barrier Line Side 600 V, 800–1200 A HDSS	600 Vac, 800–1200 A
SS80120LO ₈₉	Barrier Load Side 600 V, 800–1200 A HDSS	

Special Paint

- UL Listed
- Special Paints comply with OSHA Standard 1910.144 and ANSI Specification Z535.1 for marking physical hazards
- Special Paints are powder coated
- Available on NEMA Type 1, 3R, 12 and 12K enclosures only
- To order Special Paint add suffixes as noted in Table 40 to the standard switch catalog number
 - Minimum order quantity 10 units
- UL Listed heavy duty switches are available painted with special safety colors

Table 39 - Safety Colors

Safety Color ⁹⁰	Suffix
Black	SP0
Red	SP2
Orange	SP3
Yellow	SP4
Green	SP5
Blue	SP6
Purple	SP7
Gray	SP8 ⁹¹
Gray ANSI 61	SP861
White	SP9

87. Requires arc shield on 240 V switches be changed to 600 V arc suppressor. Contact the Customer Care Center 888-778-2733 for the arc suppressor part number.

88. The SS4060LO Internal Barrier Kit requires the SS4060LI be installed.

89. The SS80120LO Internal barrier Kit requires the SS80120LI be installed.

90. A minimum quantity of ten is required.

91. Standard Square D ANSI 49 gray paint, when selecting the suffix SP8, switches will receive an additional coat of paint.

Voltage Monitors

Voltage-indicating safety switches indicate when voltage is present, helping to prevent arc-flash hazards and electric shocks during maintenance work. Voltage-indicating safety switches can be combined with other safety features such as key interlock, viewing windows and lock on provisions.

- UL Listed
- Factory-installed only
- Order the indicators by adding the appropriate suffix shown in Table 41 to the switch catalog number
- Not available on NEMA Type 7 and 9 and NEMA Type 4 X, Fiberglass and Krydon™ Enclosures
- Not available on two- and three-pole, 200 A, NEMA Type 3R, double throw safety switches

See Table 41 on page 41.

Table 40 - Voltage Indicators

Suffix ^{92 93}	Description
SI	Line Side Indicator
LI	Load Side Indicator
LI2	Line and Load Side Indicator

Phenolic Legend Plate

Available engraved and mounted on all heavy duty safety switches, except NEMA Type 7 and 9. Legend engraved in 1/4 in. (6 mm) high white letters on black background.

- UL Listed
- Customer to provide legend
- To order, add suffix NP to standard Cat. No.
 - Example: H363NP

Switch Lubricant

- Field maintenance lubricant is available for servicing blade and jaw components in switches 600 V and below
- Catalog number SWLUB consists of one tube of BG20 High Performance Synthetic Grease manufactured by Dow Corning®
- SWLUB is available in warehouse stock, shipped individually or in multiples of 12 units per carton

92. Available on 30–1200 A Heavy Duty Safety Switches and 30–400 A Double Throw Safety Switches. For NEMA Type 1 or 3R, 30 A or 60 A fusible switches only, order an equivalent 30 A or 60 A fusible

NEMA Type 12/3R (Suffix AWK) switch.

93. In addition to the suffix in Table 40, a “3” must be added to the switch catalog number for all 30 A and 60 A switches, i.e. H361AWK becomes H3613AWKLI. The 30 A and 60 A switches will be provided in 100 A enclosures.

General Information

UL Listed Maximum Short Circuit Current Ratings

NOTE: Consult the wiring diagram of the switch to verify the UL Listed short circuit current rating.

Fusible Safety Switches

Table 41 - Fusible Safety Switches

Heavy Duty Safety Switch Type	UL Listed Fuse Class	UL Listed Short Circuit Current Ratings
Fusible	H, K	10 kA
	R, J, L	200 kA ⁹⁴

94. On 600 V, 200 A switches, 100,000 A max. on corner grounded delta when protected by Class J or R fuses.

Non-Fusible Safety Switches

- **Systems equal or less than 10 kAIR SCCR;** Any brand of circuit breaker or fuse not exceeding the ampere rating of the switch may be used in conjunction with a non-fusible safety switch, see Table 43 below
- **Systems above 10 kAIR SCCR;** The UL Listed short circuit current rating for Square D non-fusible switches is based upon the switch being used in conjunction with fuses or Square D circuit breakers or Mag-Gard motor circuit protectors, see Table 43 below

Table 42 - Non-Fusible Safety Switches

Switch Rating (A) ⁹⁶	Fuse Class or Circuit Breaker Type ⁹⁷	3-Phase			250 Vdc / 600 Vdc
		240 Vac	480 Vac	600 Vac	
With Upstream Fuse Protection					
All	H, K	10 kA	10 kA	10 kA	Up to 10 kA
	R, T, J, L	200 kA	200 kA	200 kA	
With Upstream Circuit Breaker Protection					
All	Any brand circuit breaker	10 kA	10 kA	10 kA	Up to 10 kA
30–100	HD	25 kA	18 kA	14 kA	
30–100	HG	65 kA	35 kA	18 kA	
30–100	HJ	65 kA	35 kA	25 kA	
30–100	HL	65 kA	35 kA	35 kA	
30–100	HR	65 kA	35 kA	35 kA	
200	HD, JD	25 kA	18 kA	14 kA	
200	HG, JG	65 kA	35 kA	18 kA	
200	HJ, JJ	65 kA	35 kA	25 kA	
200	HL, JL	65 kA	35 kA	35 kA	
200	HR, JR	65 kA	35 kA	35 kA	
400	LA	22 kA	22 kA	22 kA	
400	LH	25 kA	25 kA	25 kA	
400–600	LD	25 kA	18 kA	14 kA	
400–600	LG	65 kA	35 kA	18 kA	
400–600	LJ	100 kA	65 kA	25 kA	
400–600	LL	100 kA	65 kA	50 kA	
400–600	LR	100 kA	65 kA	65 kA	

95. For NEMA Type 4X Fiberglass Reinforced Polyester switches, see Table 17 and 18 on page 22.

96. NEMA Type 7/9 SCCR 10 kAIR 600 Vac maximum.

97. Ampere rating of fuse or circuit breaker not to exceed switch ampere rating.

Terminal Lug Data

Table 43 - Terminal Lug Data

Rating (A) ⁹⁸	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil	Optional ⁹⁹ Versa-Crimp™ Compression Lug Field-Installed	Optional Copper Only Versa-Crimp™ Compression Lug Field-Installed ^{99 100}
30	1	12–6 (Al) or 14–6 (Cu)	12–2 (Al) or 14–2 (Cu)	—	C10–14 ¹⁰¹ , D8–14, or E6–14
	2	12–10 (Al) or 14–10 (Cu)			
60 ¹⁰²	1	12–3 (Al) or 14–3 (Cu)	12–2 (Al) or 14–2 (Cu)	—	C10–14 ¹⁰¹ , D8–14, or E6–14
100 ¹⁰³	1	12–1/0 (Al) or 14–1/0 (Cu)	12–1/0 (Al) or 14–1/0 (Cu)	VCEL02114S1	VCELC02114S1
200 ¹⁰⁴	1	6–250 (Al/Cu)	6–300 (Al/Cu)	VCEL030516H1	VCELC030516H1
400 ¹⁰⁵	1 or 2	1/0–750 (Al/Cu) or 1/0–300 (Al/Cu)	1/0–750 (Al/Cu) and 1/0–300 (Al/Cu)	VCEL07512H1 or	VCELC07512H1 or
				VCEL030516H1 ¹⁰⁶ and	VCELC030516H1 ¹⁰⁷ and
				VCEL05012H1	VCELC05012H1
600	2	3/0–500 (Al/Cu)	3/0–500 (Al/Cu)	VCEL05012H1	VCELC05012H1
800	3	3/0–750 (Al/Cu)	3/0–750 (Al/Cu)	H8LKE2 ¹⁰⁸	—
1200	4	3/0–750 (Al/Cu)	3/0–750 (Al/Cu)	H12LKE2	—

98. 30–100 A switches suitable for 140°F (60°C) or 167°F (75°C) conductors. 200–1200 A switches suitable for 167°F (75°C) conductors.

99. Hubbell Versa-Crimp™ unless otherwise noted.

100. For NEMA Type 1, 12/3R, 12K and 4/4X/5 stainless steel switches only.

101. Order C10–14, D8–14 and E6–14 from Thomas and Betts.

102. H60XBD and H60XBDAA — use 167°F (75°C) copper wire only. #6 AWG copper wire required for 60 A rating.

103. H100XBD and H100XBDAA — use 167°F (75°C) copper wire only. #3 AWG copper wire required for 100 A rating.

104. H225XJG and H225XJGAA — use 167°F (75°C) copper wire only. Lug wire range is #3 AWG – 350 kcmil. Not UL Listed due to inadequate wire bending space (5 in. (127 mm) on the ON end, 6 in. (152 mm) on the OFF end).

105. Maximum wire bending space allows for (1) 600 kcmil or (2) 300 kcmil Al/Cu on NEMA Type 4/4X/5 stainless steel and NEMA Type 12 switches.

106. For NEMA Type 1 and 3R only. For NEMA Type 4/4X/5 stainless steel and NEMA Type 12/3R, 12K use VCEL03038H1 (Al/Cu) or VCELC03038H1 (Cu only). Order two PK516KN mounting kits when installing VCEL030516H1 lugs. Only one kit is required on two-pole switches. PK561KN consists of four 5/16–18 (7 mm) Keps Nuts.

107. For NEMA Type 4/4X/5 stainless steel and NEMA Type 12/3R, 12K use VCEL03038H1 (Al/Cu) or VCELC03038H1 (Cu only). Order two PK516KN mounting kits when installing VCEL030516H1 or VCELC030516H1 lugs. Only one kit is required on two-pole switches. PK561KN consists of four 5/16–18 (7 mm) Keps Nuts.

108. For 800 and 1200 A compression lug kits, see Table 37 on page 35 for additional information.

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